

## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 2960/181WO	FOR FURTHER ACTION	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/US2009/043656	International filing date (day/month/year) 12 May 2009	(Earliest) Priority Date (day/month/year) 12 May 2008
Applicant CONFORMIS, INC.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 2 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

## 1. Basis of the report

- a. With regard to the language, the international search was carried out on the basis of:

☒ the international application in the language in which it was filed  
☐ a translation of the international application into \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

- b. ☐ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.

2. ☐ Certain claims were found unsearchable (see Box No. II)

3. ☐ Unity of invention is lacking (see Box No. III)

## 4. With regard to the title,

☒ the text is approved as submitted by the applicant  
☐ the text has been established by this Authority to read as follows:

## 5. With regard to the abstract,

☒ the text is approved as submitted by the applicant  
☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority

## 6. With regard to the drawings,

- a. the figure of the drawings to be published with the abstract is Figure No. 1  
☒ as suggested by the applicant  
☐ as selected by this Authority, because the applicant failed to suggest a figure  
☐ as selected by this Authority, because this figure better characterizes the invention
- b. ☐ none of the figures is to be published with the abstract

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US2009/043656

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(B) - A61F 2/30 (2009.01)

USPC - 623/17.11

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC(B) - A61F 2/30, 2/44 (2009.01)

USPC - 623/17.11, 18.11

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

MicroPatent

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X — Y	US 2007/0083266 A1 (LANG) 12 April 2007 (12.04.2007) entire document	1-10, 12-28 11, 29-32
Y	US 2007/0118222 A1 (LANG) 24 May 2007 (24.05.2007) entire document	11, 29-32

☐ Further documents are listed in the continuation of Box C.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&amp;" document member of the same patent family

Date of the actual completion of the international search

22 June 2009

Date of mailing of the international search report

09 JUL 2009

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US, Commissioner for Patents  
P.O. Box 1450, Alexandria, Virginia 22313-1450  
Facsimile No. 571-273-3201

Authorized officer:

Blaine R. Copenhagen

PCT Helpdesk: 571-272-4009  
PCT OBP: 571-272-7774

Form PCT/ISA/210 (second sheet) (April 2005)

# PATENT COOPERATION TREATY

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JUL 13 2009

From the  
INTERNATIONAL SEARCHING AUTHORITY

BROMBERG & SUNSTEIN LLP

PCT

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To: KATHRYN E. NOLL  
BROMBERG & SUNSTEIN LLP  
125 SUMMER STREET  
BOSTON, MA 02110

Date of mailing  
(day/month/year) .... 09 JUL 2009

Applicant's or agent's file reference  
2950/181WO

FOR FURTHER ACTION

See paragraph 2 below

International application No.  
PCT/US2009/043656

International filing date (day/month/year)  
12 May 2009

Priority date (day/month/year)  
12 May 2008

International Patent Classification (IPC) or both national classification and IPC  
IPC(B) - A61F 2/30, A61F 2/44 (2009.01)  
USPC - 623/17.11, 623/18.11

Applicant CONFORMIS, INC.

## 1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

## 2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 65.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

## 3. For further details, see notes to Form PCT/ISA/220.

<p>Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201</p>	<p>Date of completion of this opinion 22 June 2009</p>	<p>Authorized officer: Blaine Copenhaver PCT Helpdesk: 571-272-4300 PCT OSRs: 571-272-7774</p>
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Form PCT/ISA/237 (cover sheet) (April 2007)

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.  
PCT/US2009/043656

Box No. 1 Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of:
- ☒ the international application in the language in which it was filed.
- ☐ a translation of the international application into \_\_\_\_\_ which is the language of a translation furnished for the purposes of international search (Rules 12.3(e) and 23.1(b)).
2. ☐ This opinion has been established taking into account the rectification of an obvious mistake authorized by or notified to this Authority under Rule 91 (Rule 43bis.1(e))
3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, this opinion has been established on the basis of:
- a. type of material
- ☐ a sequence listing
- ☐ table(s) related to the sequence listing
- b. format of material
- ☐ on paper
- ☐ in electronic form
- c. time of filing/furnishing
- ☐ contained in the international application as filed
- ☐ filed together with the international application in electronic form
- ☐ furnished subsequently to this Authority for the purposes of search
4. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/US2009/043656

<b>Box No. V</b>	<b>Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</b>																										
<p><b>1. Statement</b></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; vertical-align: top;">Novelty (N)</td> <td style="width: 10%; vertical-align: top;">Claims</td> <td style="width: 50%; border-bottom: 1px solid black;">2-5, 8, 11-13, 16-18, 20-32</td> <td style="width: 10%; text-align: right; vertical-align: bottom;">YES</td> </tr> <tr> <td></td> <td style="vertical-align: top;">Claims</td> <td style="border-bottom: 1px solid black;">1, 6-8, 10, 14, 19</td> <td style="text-align: right; vertical-align: bottom;">NO</td> </tr> <tr> <td style="vertical-align: top;">Inventive step (IS)</td> <td style="vertical-align: top;">Claims</td> <td style="border-bottom: 1px solid black;">None</td> <td style="text-align: right; vertical-align: bottom;">YES</td> </tr> <tr> <td></td> <td style="vertical-align: top;">Claims</td> <td style="border-bottom: 1px solid black;">1-32</td> <td style="text-align: right; vertical-align: bottom;">NO</td> </tr> <tr> <td style="vertical-align: top;">Industrial applicability (IA)</td> <td style="vertical-align: top;">Claims</td> <td style="border-bottom: 1px solid black;">1-32</td> <td style="text-align: right; vertical-align: bottom;">YES</td> </tr> <tr> <td></td> <td style="vertical-align: top;">Claims</td> <td style="border-bottom: 1px solid black;">None</td> <td style="text-align: right; vertical-align: bottom;">NO</td> </tr> </table>				Novelty (N)	Claims	2-5, 8, 11-13, 16-18, 20-32	YES		Claims	1, 6-8, 10, 14, 19	NO	Inventive step (IS)	Claims	None	YES		Claims	1-32	NO	Industrial applicability (IA)	Claims	1-32	YES		Claims	None	NO
Novelty (N)	Claims	2-5, 8, 11-13, 16-18, 20-32	YES																								
	Claims	1, 6-8, 10, 14, 19	NO																								
Inventive step (IS)	Claims	None	YES																								
	Claims	1-32	NO																								
Industrial applicability (IA)	Claims	1-32	YES																								
	Claims	None	NO																								
<p><b>2. Citations and explanations:</b></p> <p>Claims 1, 6-8, 10, 14, and 19 lack novelty under PCT Article 33(2) as being anticipated by US 2007/0083266 A1 to Lang, hereinafter "Lang '266".</p> <p>Regarding Claim 1, Lang '266 discloses an interpositional device for use in a facet joint, comprising: a body configured to be inserted between articular surfaces of the facet joint (pg. 13, claim 1), the body having first and second articular surfaces and first and second ends, the first articular surface having contours configured to resist motion relative to an opposing articular surface when the device is inserted between articular surfaces of the facet joint, the second articular surface configured to facilitate motion relative to another opposing articular surface when the device is inserted between articular surfaces of a facet joint (pg. 13, claim 5).</p> <p>Regarding Claim 8, Lang '266 discloses the interpositional device of Claim 1 wherein the contours of at least a portion of the first articular surface substantially conform to corresponding contours of the opposing articular surface (pg. 13, claim 5).</p> <p>Regarding Claim 7, Lang '266 discloses the interpositional device of Claim 1 wherein at least a portion of the first articular surface substantially forms a negative of a corresponding portion of the opposing articular surface (pg. 6, para. [0067]).</p> <p>Regarding Claim 8, Lang '266 discloses the interpositional device of Claim 1 wherein the first articular surface is configured to secure the device when implanted in the facet joint (pg. 13, claim 5 regarding the "first surface that is highly conforming to a first articular surface" and pg. 12, para. [0128]).</p> <p>Regarding Claim 10, Lang '266 discloses the interpositional device of Claim 1 wherein the second articular surface is substantially smooth (pg. 13, claim 5).</p> <p>Regarding Claim 14, Lang '266 discloses a patient-specific implant for use in a facet joint, comprising: a body configured to be inserted between articular surfaces of the facet joint (pg. 13, claim 1), the body having first and second articular surfaces, at least a portion of the first articular surface substantially conforming to a corresponding portion of a first articular surface of the facet joint, the second articular surface having a substantially smooth portion configured to engage and move relative to a second articular surface of the facet joint when the implant is placed between the first and second articular surfaces of the facet joint (pg. 13, claim 5).</p> <p>Regarding Claim 19, Lang '266 discloses the interpositional device of Claim 14 wherein the first articular surface is configured to secure the device when implanted in the facet joint. (pg. 13, claim 5 regarding the "first surface that is highly conforming to a first articular surface" and pg. 12, para. [0129]).</p>																											

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.  
PCT/US2009/043656

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.  
Continuation of:

Claims 2-6, 9, 12, 13, 15-18 and 20-28 lack an inventive step under PCT Article 33(3) as being obvious over Lang '266.

Regarding Claim 2, Lang '266 discloses the interpositional device of Claim 1 but lacks the teaching wherein the first end is enlarged relative to a middle portion of the device. However, in an alternative embodiment, Lang '266 teaches an interpositional device wherein the first end is enlarged relative to a middle portion of the device (Fig. 2G). Therefore, it would have been obvious to one of ordinary skill in the art to modify the interpositional device of Lang '266, as taught in the alternative embodiment, for the purpose of maintaining appropriate movement and stabilization of the device relative to the two articular surfaces.

Regarding Claim 3, Lang '266 discloses the interpositional device of Claim 1 and teaches the interpositional device of Claim 2 but lacks the teaching wherein the first end is configured to engage at least one surface of the facet joint and thereby resist motion of the device relative to the facet joint. However, in an alternative embodiment, Lang '266 teaches an interpositional device wherein the first end forms a lip configured to engage at least one surface of the facet joint and thereby resist motion of the device relative to the facet joint (pg. 12, para. [0134] and [0137]). Therefore, it would have been obvious to one of ordinary skill in the art to modify the interpositional device of Lang '266, as taught in the alternative embodiment, for the purpose of maintaining appropriate movement and stabilization of the device relative to the two articular surfaces.

Regarding Claim 4, Lang '266 discloses the interpositional device of Claim 1 and teaches the interpositional device of Claim 2 but lacks the teaching wherein the first end is configured to be located in an inter-articular position when the interpositional device is implanted in the facet joint. However, in an alternative embodiment, Lang '266 teaches an interpositional device wherein the first end is configured to be located in an inter-articular position when the interpositional device is implanted in the facet joint (pg. 12, para. [0134] and Fig. 2G). Therefore, it would have been obvious to one of ordinary skill in the art to modify the interpositional device of Lang '266, as taught in the alternative embodiment, for the purpose of maintaining appropriate movement and stabilization of the device relative to the two articular surfaces.

Regarding Claim 5, Lang '266 discloses the interpositional device of Claim 1 and teaches the interpositional device of Claim 2 but lacks the teaching wherein the first end is configured to be located in an extra-articular position when the interpositional device is implanted in the facet joint. However, in an alternative embodiment, Lang '266 teaches an interpositional device wherein the first end is configured to be located in an extra-articular position when the interpositional device is implanted in the facet joint (pg. 12, para. [0134]). Therefore, it would have been obvious to one of ordinary skill in the art to modify the interpositional device of Lang '266, as taught in the alternative embodiment, for the purpose of maintaining appropriate movement and stabilization of the device relative to the two articular surfaces.

Regarding Claim 9, Lang '266 discloses the interpositional device of Claim 1 but lacks the teaching wherein at least a portion of the first articular surface is configured to interdigitate with a corresponding portion of the opposing articular surface when the device is implanted in the facet joint. However, in an alternative embodiment, Lang '266 teaches an interpositional device wherein at least a portion of the first articular surface is configured to interdigitate with a corresponding portion of the opposing articular surface when the device is implanted in the facet joint (Fig. 2H). Therefore, it would have been obvious to one of ordinary skill in the art to modify the interpositional device of Lang '266, as taught in the alternative embodiment, for the purpose of maintaining appropriate movement and stabilization of the device relative to the two articular surfaces.

Regarding Claim 12, Lang '266 discloses the interpositional device of Claim 1 but lacks the teaching wherein the device further comprises an attachment mechanism configured to secure the device in a facet joint (pg. 9, para. [0082] regarding "attachment mechanisms can be provided to anchor the implant to the altered surface"). However, in an alternative embodiment, Lang '266 teaches an interpositional device wherein the device further comprises an attachment mechanism configured to secure the device in a facet joint (pg. 9, para. [0082] regarding "attachment mechanisms can be provided to anchor the implant to the altered surface"). Therefore, it would have been obvious to one of ordinary skill in the art to modify the interpositional device of Lang '266, as taught in the alternative embodiment, for the purpose of maintaining appropriate movement and stabilization of the device relative to the two articular surfaces.

Regarding Claim 13, Lang '266 discloses the interpositional device of Claim 1 and teaches the interpositional device of Claim 12 but lacks the teaching wherein the attachment mechanism is at least one of a pin, fin, or screw. However, in an alternative embodiment, Lang '266 teaches an interpositional device wherein the attachment mechanism is at least one of a pin, fin, or screw (pg. 9, para. [0082] and Fig. 2I-2J). Therefore, it would have been obvious to one of ordinary skill in the art to modify the interpositional device of Lang '266, as taught in the alternative embodiment, for the purpose of maintaining appropriate movement and stabilization of the device relative to the two articular surfaces.

Regarding Claim 15, Lang '266 discloses the implant of Claim 14 but lacks the teaching wherein the device further comprises a first end and a middle portion, wherein the first end is enlarged relative to a middle portion of the device (Fig. 2G). However, in an alternative embodiment, Lang '266 teaches an implant wherein the device further comprises a first end and a middle portion, wherein the first end is enlarged relative to a middle portion of the device (Fig. 2G). Therefore, it would have been obvious to one of ordinary skill in the art to modify the implant of Lang '266, as taught in the alternative embodiment, for the purpose of maintaining appropriate movement and stabilization of the device relative to the two articular surfaces.

WRITTEN OPINION OF THE  
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International application No.  
PCT/US2009/043656

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.  
Continuation of:

Regarding Claim 16, Lang '266 discloses the Implant of Claim 14 and teaches the Implant of Claim 15 but lacks the teaching wherein the first end forms a cap configured to engage at least a portion of the facet joint and thereby resist motion of the device relative to the facet joint. However, in an alternative embodiment, Lang '266 teaches an implant wherein the first end forms a cap configured to engage at least a portion of the facet joint and thereby resist motion of the device relative to the facet joint (pg. 12, para. [0134] and [0137]). Therefore, it would have been obvious to one of ordinary skill in the art to modify the Implant of Lang '266, as taught in the alternative embodiment, for the purpose of maintaining appropriate movement and stabilization of the device relative to the two articular surfaces.

Regarding Claim 17, Lang '266 discloses the Implant of Claim 14 and teaches the Implant of Claim 15 but lacks the teaching wherein the first end is configured to be located in an inter-articular position when the interpositional device is implanted in the facet joint. However, in an alternative embodiment, Lang '266 teaches an implant wherein the first end is configured to be located in an inter-articular position when the interpositional device is implanted in the facet joint (pg. 12, para. [0134] and Fig. 2G). Therefore, it would have been obvious to one of ordinary skill in the art to modify the Implant of Lang '266, as taught in the alternative embodiment, for the purpose of maintaining appropriate movement and stabilization of the device relative to the two articular surfaces.

Regarding Claim 18, Lang '266 discloses the Implant of Claim 14 and teaches the Implant of Claim 15 but lacks the teaching wherein the first end is configured to be located in an extra-articular position when the interpositional device is implanted in the facet joint. However, in an alternative embodiment, Lang '266 teaches an implant wherein the first end is configured to be located in an extra-articular position when the interpositional device is implanted in the facet joint (pg. 12, para. [0134]). Therefore, it would have been obvious to one of ordinary skill in the art to modify the Implant of Lang '266, as taught in the alternative embodiment, for the purpose of maintaining appropriate movement and stabilization of the device relative to the two articular surfaces.

Regarding Claim 20, Lang '266 discloses the Implant of Claim 14 but lacks the teaching wherein the Implant further comprises first and second ends, wherein the first and second ends each are enlarged relative to a middle portion of the device. However, in an alternative embodiment, Lang '266 teaches an implant wherein the Implant further comprises first and second ends, wherein the first and second ends each are enlarged relative to a middle portion of the device (Fig. 2G). Therefore, it would have been obvious to one of ordinary skill in the art to modify the Implant of Lang '266, as taught in the alternative embodiment, for the purpose of maintaining appropriate movement and stabilization of the device relative to the two articular surfaces.

Regarding Claim 21, Lang '266 discloses the Implant of Claim 14 but lacks the teaching wherein the Implant further comprises an attachment mechanism configured to secure the device in a facet joint. However, in an alternative embodiment, Lang '266 teaches an implant wherein the Implant further comprises an attachment mechanism configured to secure the device in a facet joint (pg. 8, para. [0082] regarding "attachment mechanisms can be provided to anchor the implant to the altered surface"). Therefore, it would have been obvious to one of ordinary skill in the art to modify the Implant of Lang '266, as taught in the alternative embodiment, for the purpose of maintaining appropriate movement and stabilization of the device relative to the two articular surfaces.

Regarding Claim 22, Lang '266 discloses the Implant of Claim 14 and teaches the Implant of Claim 21 but lacks the teaching wherein the attachment mechanism is at least one of a pin, fin, or screw. However, in an alternative embodiment, Lang '266 teaches an implant wherein the attachment mechanism is at least one of a pin, fin, or screw (pg. 9, para. [0082] and Fig. 2T(5-7)). Therefore, it would have been obvious to one of ordinary skill in the art to modify the Implant of Lang '266, as taught in the alternative embodiment, for the purpose of maintaining appropriate movement and stabilization of the device relative to the two articular surfaces.

Regarding Claim 23, Lang '266 discloses an interpositional device for use in decompressing (pg. 11, para. [0110] regarding an "implant [that]...can be increased in one or more dimensions") a portion of a spine (pg. 11, para. [0110]), comprising: a body configured to be inserted between articular surfaces of a facet joint (pg. 13, claim 1), the body having first and second articular surfaces (pg. 13, claim 5), the first articular surface configured to move relative to an opposing articular surface when the device is in place (pg. 13, claim 5); wherein the first end portion is configured to resist motion of the body relative to the facet joint in at least one direction when the interpositional device is implanted (pg. 13, claim 5). Lang '266 lacks the teaching wherein an interpositional device having a first end portion and a middle portion further comprises the first end portion having a thickness between the first and second articular surfaces that is larger than a corresponding thickness of the middle portion. However, in an alternative embodiment, Lang '266 teaches an interpositional device having a first end portion and a middle portion further comprising the first end portion having a thickness between the first and second articular surfaces that is larger than a corresponding thickness of the middle portion (Fig. 2G). Therefore, it would have been obvious to one of ordinary skill in the art to modify the interpositional device of Lang '266, as taught in the alternative embodiment, for the purpose of maintaining appropriate movement and stabilization of the device relative to the two articular surfaces.

Regarding Claim 24, Lang '266 teaches the interpositional device of Claim 23 wherein at least a portion of the second articular surface includes contours that substantially conform to corresponding contours of a second articular surface (pg. 13, claim 5).

Regarding Claim 26, Lang '266 teaches the interpositional device of Claim 23 wherein at least a portion of the second articular surface substantially forms a negative of a corresponding portion of a second articular surface (pg. 6, para. [0067]).

Regarding Claim 26, Lang '266 teaches the interpositional device of Claim 23 wherein the second articular surface is configured to secure the device when implanted in the facet joint (pg. 13, claim 5 regarding the "first surface that is highly conforming to a first articular surface" and pg. 12, para. [0128]).

WRITTEN OPINION OF THE  
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International application No.  
PCT/US2009/043656

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.  
Continuation of:

Regarding Claim 27, Lang '266 teaches the Interpositional device of Claim 23 but lacks the teaching wherein at least a portion of the second articular surface is configured to interdigitate with a corresponding portion of a second articular surface when the device is implanted in the facet joint. However, in an alternative embodiment, Lang '266 teaches an Interpositional device wherein at least a portion of the second articular surface is configured to interdigitate with a corresponding portion of a second articular surface when the device is implanted in the facet joint. Therefore, it would have been obvious to one of ordinary skill in the art to modify the implant of Lang '266, as taught in the alternative embodiment, for the purpose of maintaining appropriate movement and stabilization of the device relative to the two articular surfaces.

Regarding Claim 28, Lang '266 teaches the Interpositional device of Claim 23 wherein the first articular surface is substantially smooth (pg. 13, claim 5).

Claims 11 and 29-32 lack an inventive step under PCT Article 33(3) as being obvious over Lang '266 further in view of US 2007/0118222 A1 to Lang, hereinafter "Lang '222."

Regarding Claim 11, Lang '266 discloses the Interpositional device of Claim 1 but lacks the teaching wherein the second end is enlarged relative to a middle portion of the device. However in an alternative embodiment, Lang '266 teaches an Interpositional device wherein the second end is enlarged relative to a middle portion of the device (Fig. 2G) and is configured to enlarge a space between first and second surfaces of the facet joint. Therefore, it would have been obvious to one of ordinary skill in the art to modify the Interpositional device of Lang '266, as taught in the alternative embodiment, for the purpose of maintaining appropriate movement and stabilization of the device relative to the two articular surfaces. Lang '266 does not teach wherein the device is configured to enlarge a space between first and second surfaces of the facet joint. Lang '222 teaches a device wherein the device is configured to enlarge a space between first and second surfaces of the facet joint. (pg. 8, para. [0088]). At the time of the invention, it would have been obvious to one skilled in the art to modify Lang '266 to include the increase joint spacing as taught by Lang '222. The motivation for doing so would have been to add functionality to the implant device.

Regarding Claim 29, Lang '266 discloses a device for use in relieving pressure on a portion of a spine, comprising: a body configured to be inserted between articular surfaces of a facet joint (pg. 13, claim 1), the body having first and second articular surfaces and an end portion, the first articular surface configured to engage a corresponding first surface of the facet joint when the device is implanted, the second articular surface configured to engage a corresponding second surface of the facet joint when the device is implanted, the end portion being relatively thicker in a direction between the first and second surfaces than an adjacent portion of the device (pg. 13, claim 5). Lang '266 does not teach a device wherein the end portion is configured to increase the spacing between the first and second surfaces of the facet joint when the device is implanted in the facet joint.

Lang '222 teaches a device wherein the end portion is configured to increase the spacing between the first and second surfaces of the facet joint when the device is implanted in the facet joint (pg. 8, para. [0088]). At the time of the invention, it would have been obvious to one skilled in the art to modify Lang '266 to include the increase joint spacing as taught by Lang '222. The motivation for doing so would have been to add functionality to the implant device.

Regarding Claim 30, Lang '266 discloses a method for decompressing (pg. 11, para. [0110]) regarding an "implant [that]...can be increased in one or more dimensions" a portion of a spine (pg. 11, para. [0110]), comprising: inserting an implant between first and second articular surfaces of a facet joint (pg. 13, claims 1 and 5). Lang '266 does not teach a method to expand a space between the articular surfaces and stabilize the implant in the facet joint such that the first and second surfaces remain in an expanded position for a period of time; wherein the portion of the spine decompresses as a result of the expanded space between the articular surfaces (pg. 8, para. [0088]).

Lang '222 teaches a method to expand a space between the articular surfaces and stabilize the implant in the facet joint such that the first and second surfaces remain in an expanded position for a period of time; wherein the portion of the spine decompresses as a result of the expanded space between the articular surfaces (pg. 8, para. [0088]). At the time of the invention, it would have been obvious to one skilled in the art to modify Lang '266 to include the increase joint spacing as taught by Lang '222. The motivation for doing so would have been to add functionality to the implant device.

Regarding Claim 31, Lang '266 in view of Lang '222 teach the method of Claim 30. Lang '222 further teach wherein pressure on an adjacent interstitial space of the spine is reduced (pg. 8, para. [0088]) and para. [0090]-[0092]). At the time of the invention, it would have been obvious to one skilled in the art to modify Lang '266 to include the pressure reduction as taught by Lang '222. The motivation for doing so would have been to add functionality to the implant device.

Regarding Claim 32, Lang '266 in view of Lang '222 teach the method of Claim 30. Lang '222 further teach wherein pain associated with pressure on the spine is subsequently reduced (pg. 8, para. [0088]). At the time of the invention, it would have been obvious to one skilled in the art to modify Lang '266 to include the pain reduction as taught by Lang '222. The motivation for doing so would have been to add functionality to the implant device.

Claims 1-32 meet the criteria set out in PCT Article 33(4), and thus have Industrial applicability because the subject matter claimed can be made or used in industry.